

are not accelerated through a constriction downstream of said closure means.

Please amend claim 8 as follows:

8. (Amended) A method of accelerating particles according claim 1, wherein said closure means is a first closure means and the method further comprises opening a further closure means before opening said first closure means.

Please amend claim 9 as follows:

9. (Amended) A method of accelerating particles according to claim 1, further comprising directing said quasi-steady flow of fluid through a divergent nozzle positioned downstream of said duct section.

Please amend claim 11 as follows:

11. (Amended) A method of accelerating particles according to claim 9, wherein said quasi-steady flow directed through said nozzle portion exits the downstream end of said device with a velocity distribution that is substantially uniform over a cross-section thereof.

Please amend claim 12 as follows:

12. (Amended) A method of accelerating particles according to claim 9, wherein said divergent nozzle portion has an internal contour such that substantially no oblique shocks are formed in the part of said quasi-steady flow in which said particles are entrained.

Please amend claim 13 as follows:

13. (Amended) A method of accelerating particles according to claim 9, further comprising spacing said needleless injection device from a target plane;
creating a substantially normal shock wave at the exit of said divergent portion;

decelerating the particles in said substantially normal shock wave so as to have a generally radially uniform velocity as they impact the ne.

Please amend claim 14 as follows:

14. (Amended) A method of accelerating particles according to claim 9, further comprising the step of initiating a (*u-a*) wave at the downstream end of said duct section.

Please amend claim 16 as follows:

16. (Amended) A method of accelerating particles according to claim 1, further comprising creating an expansion wave which travels in an upstream direction from the location of said closure means.

Please amend claim 19 as follows:

19. (Amended) A method of accelerating particles according to claim 1, further comprising the step of selecting the driver gas species, or combination of species, so as to control the velocity of the particles as they exit the device.

Please amend claim 22 as follows:

22. (Amended) A needleless injection device according to claim 20, wherein said closure means is positioned at the downstream extent of said driver chamber.

Please amend claim 23 as follows:

23. (Amended) A needleless injection device according to claim 20, wherein said driver chamber is pre-charged with pressurised gas.

Please amend claim 24 as follows:

24. (Amended) A needleless injection device according to claim 20, further comprising a source of gaseous fluid, said driver chamber being fluidly connected to said source and arranged to be provided with said charge of pressurised gas by said source upon opening of the fluid connection therebetween.

Please amend claim 26 as follows:

26. (Amended) A needleless injection device according to claim 20, wherein said duct section comprises a tube of substantially constant cross-sectional area.

Please amend claim 27 as follows:

27. (Amended) A needleless injection device according to claim 20, in which said particles are positioned upstream of said closure means.

Please amend claim 28 as follows:

28. (Amended) A needleless injection device according to claim 20, wherein said duct section includes substantially no convergent portion therein downstream of said closure means.

Please amend claim 29 as follows:

29. (Amended) A needleless injection device according to claim 20, further comprising a divergent nozzle portion positioned downstream of said duct section.

Please amend claim 31 as follows:

31. (Amended) A needleless injection device according to claim 29, wherein said divergent nozzle portion has an internal contour such that substantially no oblique shock waves are formed in said substantially quasi-steady flow.

Please amend claim 32 as follows:

32. (Amended) A needleless injection device according to claim 29, wherein said divergent nozzle portion is contoured such as to cause any expansion downstream of the duct section to provide a generally radially uniform particle distribution at the exit of the divergent portion and a generally radially uniform particle velocity distribution, with a substantially parallel velocity of particles and gas exiting the device.

Please amend claim 33 as follows:

33. (Amended) A needleless injection device according to claim 29, further comprising a spacer positioned at the downstream end of the device, the spacer being constructed so as to space a target plane downstream of the divergent nozzle portion exit with a clearance sufficient to allow:
 a substantially normal shock wave to be positioned downstream of the exit of said divergent nozzle portion; so that
 said normal shock interacts, in use, with the gas and particle jet from said device to provide a substantially controlled and uniform gas stagnation region which decelerates the particles to a generally uniform velocity as they impact the target plane.

Please amend claim 34 as follows:

34. (Amended) A needleless injection device according to claim 20, wherein said driver chamber comprises a substantially constant area tube.

Please amend claim 35 as follows:

35. (Amended) A needleless injection device according to claim 20, wherein said driver chamber comprises a convergence at its downstream end, positioned upstream of said closure means.

Please amend claim 36 as follows:

36. (Amended) A needleless injection device according to claim 20, wherein said closure means comprises a rupturable membrane arranged to open by rupturing.

Please amend claim 38 as follows:

38. (Amended) A needleless injection device according to claim 20, wherein said device contains a further closure means.

Please amend claim 40 as follows:

40. (Amended) A needleless injection device according to claim 38, wherein said further closure means comprises a rupturable membrane arranged to open by rupturing.

Please amend claim 47 as follows:

47. (Amended) A particle retention assembly according to claim 45, further comprising transfer duct closure means in said transfer duct.

Please amend claim 49 as follows:

49. (Amended) A particle retention assembly according to claim 45, wherein said transfer duct is positioned in said second closure means.

Please amend claim 50 as follows:

50. (Amended) A particle retention assembly according to claim 42, further comprising a dose of particles located between said first and second closure means.

Please amend claim 51 as follows:

51. (Amended) A particle retention assembly according to claim 42, wherein some or all of said various closure means are each constituted by a rupturable membrane which is scored or indented to provide controlled rupturing.

Please cancel claim 54 without prejudice.

Please amend claim 55 as follows:

55. (Amended) A needleless injection device comprising the assembly of claim 42.

Please amend claim 56 as follows:

56. (Amended) A method of needleless injection involving the injection of particles into bodily tissue, the method comprising accelerating the particles in a needleless injection device using the method of particle acceleration claimed in claim 1.

Please amend claim 60 as follows:

60. (Amended) A method of entraining a dose of particles according to claim 58, further comprising providing a transfer duct closure means in said transfer duct.

Atty Dkt. No.: KEMP002
USSN: Unassigned

Please amend claim 62 as follows:

62. (Amended) A method of entraining a dose of particles according to claim 58, further including the steps of allowing gas to pass through a small aperture in said upstream closure means; and

causing said upstream closure means to rupture after some gas has passed therethrough into said space between said upstream and downstream closure means.

Please amend claim 63 as follows:

63. (Amended) A method of needleless injection involving the injection of particles into bodily tissue, the method comprising entraining the particles in a gas flow in a needleless injection device using a method of particle entrainment according to claim 58.